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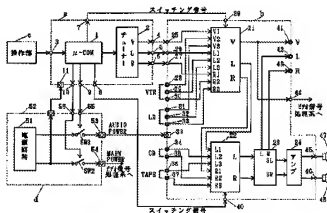
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(54) [Title] TELEVISION RECEIVER

(57) Abstract**Objective** To use the audio system of a television receiver as an audio device selector and amp.

Constitution When the switch of operating unit C is operated to set to audio mode, the output from power circuit 51 is supplied only to a circuit board b provided with an audio switch 22 and an audio amp 24. Audio switch 22 selects the FM broadcast audio signal supplied from audio/video switch 21, the audio signal supplied from an external CD player, and the audio signal supplied from an external cassette deck based on a switching signal supplied from microcomputer 1 and outputs them to surround circuit 23. Surround circuit 23 supplies the audio signal to audio output terminals 42 and 43, and also supplies a surround audio signal to audio amp 24.



[Figure is translated at the end of document.]

Claims

1. A television receiver, characterized in that it is provided with an operating mode in which source voltage is supplied only to the audio system.
2. The television receiver described in Claim 1, characterized in that the audio system has a means that selects the audio signal input from multiple externally connected audio devices, and a means that amplifies the output of said means.
3. The television receiver described in Claim 1, characterized in that the audio system has a means that selects the audio signal input from multiple externally connected audio devices, and a means that creates a surround audio signal from the output of said means.

Detailed explanation of the invention

[0001]

Field of industrial application

The present invention relates to a television receiver, and in particular to a television receiver that has a function as an audio device amp and selector.

[0002]

Prior art

Previously, there have been systems such as shown in Figure 3, for example, as audio-visual systems that are configured to enable viewing and listening with audio devices and audio-visual devices.

[0003]

With this system, video signals output from VTR 61 and laser disc player 62 are supplied to the video input terminal of a television receiver 65, while the audio signals are supplied to a selector 66. The audio signals output from a CD player 63 and a cassette deck 64 are also supplied to selector 66. Television receiver 65 additionally supplies the audio signal for a TV broadcast received with a built-in antenna to selector 66.

[0004]

Television receiver 65 selects the video signal for a TV broadcast received by the built-in antenna, the video signal output from VTR 61, or the video signal output from laser disc player 62 and displays the picture onscreen. In this case, the audio signal output from television receiver 65, VTR 61 or laser disc player 62 is selected by selector 66, amplified by an amp 67, and output as audio from a speaker SP.

[0005]

In the same way, the audio signal output from CD player 63 or cassette deck 64 is selected by selector 66, amplified by amp 67, and output as audio from speaker SP.

[0006]

Problems to be solved by the invention

In recent years, the performance of audio processing circuitry and built-in speakers in television receivers has greatly improved, so people have come to listen to satisfactory sound with only the speakers. With the conventional audio-visual system shown in Figure 3, however, a selector, amp and speaker specifically for audio signals are provided, so the problem is that the audio system of a television receiver with improved performance is not effectively utilized.

[0007]

If the system shown in Figure 3 is configured so that the audio signals from VTR 61, laser disc player 62 and television receiver 65 are output as audio from the speaker that is built into television receiver 65, the audio system of the television receiver will be utilized when listening to the sound from these devices. Even when the audio signals from CD player 63 and cassette deck 64 are supplied to the audio input terminal of television receiver 65, however, with ordinary television receivers, when only an audio signal is input without a video signal being input, the audio signal processing circuitry is muted, so there is the problem that the sound cannot be heard with the built-in speaker of television receiver 65.

[0008]

The present invention was devised to solve such problems and makes it possible for the audio system of a television receiver to be used as an audio device selector and amp.

[0009]

Means to solve the problems

To solve the aforementioned problems, the invention pertaining to Claim 1 is provided with an operating mode to supply source voltage only to the audio system in a television receiver.

[0010]

The invention pertaining to Claim 2 is characterized in that, in a television receiver provided with an operating mode to supply source voltage only to the audio system, the audio system has a means (audio switch) to select the audio signals input from multiple externally connected audio devices, and a means (audio amp) to amplify the output of said means.

[0011]

The invention pertaining to Claim 3 is characterized in that, in a television receiver provided with an operating mode to supply source voltage only to the audio system, the audio system has a means (audio switch) to select the audio signals input from multiple externally connected audio devices, and a means (surround circuit) to create a surround audio signal from the output of said means.

[0012]

Operation

With the invention pertaining to Claim 1, source voltage is supplied only to the audio system. With the invention pertaining to Claim 2, audio signals input from multiple externally connected audio devices are selected and the selected audio signals are amplified.

[0013]

With the invention pertaining to Claim 3, audio signals input from multiple externally connected audio devices are selected and a surround audio signal is created from the selected audio signals.

[0014]

Application example

An application example of the present invention is explained in detail below with reference to the figures. Figure 1 is a block diagram that shows the basic configuration of a television receiver to which the present invention is applied.

[0015]

In the television receiver, the signal for a TV broadcast or FM audio broadcast (referred to as FM broadcast hereafter) is converted to a high-frequency signal by an antenna ANT, a video signal and/or audio signal is extracted in a tuner 2, and it is supplied to an AV switch and audio amp unit B. The video signals and audio signals from an external VTR and laser disc player are also supplied to AV switch and audio amp unit B. Audio signals from an external CD player and cassette desk are additionally supplied.

[0016]

Operating unit C is provided with an audio mode setting switch, a normal mode setting switch, a changeover switch for the source selected by AV switch and audio amp unit B, and a

switch to select the reception channel for tuner 2 (none are shown). Standby starts when a plug (not shown) is inserted into a power outlet. At this stage, source voltage is supplied from a power unit D only to microcomputer 1 and tuner 2. Note that the functions of operating unit C could also be realized with a remote control device.

[0017]

When the audio mode setting switch is operated while in standby, microcomputer 1 sends a control signal to power unit D, and power unit D is controlled to supply source voltage only to AV switch and audio amp unit B, in addition to microcomputer 1 and tuner 2 that are already being supplied with source voltage. Next, when a switch that selects an audio source, that is, a CD player, cassette deck or FM broadcast, is operated, microcomputer 1 sends a switching signal to AV switch and audio amp unit B. The result is that the audio signal from the audio source selected by operating unit C is output to built-in speaker SP and an audio output terminal.

[0018]

On the other hand, when the normal mode setting switch is operated while in standby, microcomputer 1 sends a control signal to power unit D, which is controlled to supply source voltage to all parts of the television receiver, that is, AV switch and audio amp unit B, Y/C and synchronization processing circuit E, which is the video signal processing system, CRT drive circuit F, and deflecting circuit H, in addition to microcomputer 1 and tuner 2 that are already being supplied with source voltage. Next, when a switch that selects a video source, that is, a VTR, laser disc player or TV broadcast, is operated, microcomputer 1 sends a switching signal to AV switch and to audio amp unit B. The result is that the video signal from the video source selected by operating unit C is output to Y/C and synchronization processing circuit E and the video output terminal, and the audio signal is output to speaker SP and to the audio output terminal. Y/C and synchronization processing circuit E generates R, G and B color signals and supplies them to CRT drive circuit F, and the synchronization signal is supplied to deflecting circuit H. Cathode-ray tube G displays the picture according to the color signals output from CRT drive circuit F and the deflection signal and high voltage output from deflecting circuit H.

[0019]

Next, one example of actual configuration for microcomputer 1, tuner 2, AV switch and audio amp unit B and power unit D is explained with reference to Figure 2.

[0020]

Microcomputer 1 and tuner 2 are provided on a circuit board a in this application example. AV switch and audio amp unit B and power unit D are provided on circuit boards b and d, respectively.

[0021]

The output from operating unit C is input from a terminal 3 provided on circuit board a to microcomputer 1. Microcomputer 1 supplies a control signal to select a channel to tuner 2. Microcomputer 1 additionally outputs switching signals for AV switch and audio amp unit B from terminals 7 and 8. Of these, the switching signal output from terminal 7 is supplied from terminal 39 on circuit board b to audio/video switch 21, and the switching signal output from terminal 8 is supplied from terminal 40 of circuit board b to audio switch 22.

[0022]

Audio/video switch 21 selects video signal (V1) output from tuner 2 and supplied through terminal 4 of circuit board a and terminal 25 of circuit board b, video signal (V2) supplied from an external VTR through terminal 28, and video signal (V3) supplied from an external laser disc player through terminal 31, based on the switching signal supplied from terminal 39, and outputs them to video output terminal 41 and terminal 44. Terminal 44 is connected to Y/C and synchronization processing circuit E in Figure 1.

[0023]

Audio/video switch 21 also selects audio signal (L1, R1) output from tuner 2 and supplied through terminals 5 and 6 of circuit board a and terminals 26 and 27 of circuit board b, audio signals (L2, R2) supplied from an external VTR through terminals 29 and 30, and audio signal (L3, R3) supplied from an external laser disc player through terminals 32 and 33, and supplies them to audio switch 22.

[0024]

In the same way, the audio switch selects audio signals (L1, R1) supplied from audio/video switch 21, audio signals (L2, R2) supplied from an external CD player through terminals 34 and 35, and audio signal (L3, R3) supplied from an external cassette deck through terminals 36 and 37, based on the switching signal supplied from terminal 40, and outputs them to surround circuit 23. Surround circuit 23 supplies audio signals (L, R) to audio output terminals 42 and 43, and also supplies surround audio signal (SL, SR) to audio amp 24. The output from audio amp 24 is supplied to left and right built-in speakers 47 and 48 through terminals 45 and

46. If the main speakers are attached to audio output terminals 42 and 43, a surround system can be configured by combining with built-in speakers 47 and 48.

[0025]

When the plug of power unit D is inserted into a power outlet, power circuit 51 supplies source voltage from terminal 52 to terminal 11 on circuit board a. Microcomputer 1 operates because of this, and the television receiver goes to standby.

[0026]

When the audio mode setting switch of operating unit C is operated at this stage, microcomputer 1 outputs a control signal from terminal 9 to terminal 55 of circuit board d. The control signal is supplied to first switch SW1 and switch SW1 is controlled so as to close. The result is that the output from power circuit 51 is supplied from terminal 53 to terminal 38 of circuit board b, so AV switch and audio amp unit B operates.

[0027]

On the other hand, when the normal mode setting switch of operating unit C is operated while in standby, microcomputer 1 outputs a control signal from terminal 9 to terminal 55 and also outputs a control signal from terminal 10 to terminal 56. The control signal input from terminal 55 controls first switch SW1 so as to close it. The control signal input from terminal 56 controls a second switch SW2 so as to close it. When second switch SW2 closes, the output from power circuit 51 is supplied from terminal 54 [and] source voltage [is supplied] to Y/C and synchronization processing circuit E, CRT drive circuit F, and deflecting circuit H in Figure 1. The result is that the entire television receiver operates.

[0028]

Note that the aforementioned application example is configured so that source voltage will be supplied to microcomputer 1 and tuner 2 while in standby, but it could also be configured so that source voltage is supplied only to microcomputer 1 while in standby, or it could be configured so that source voltage is supplied to tuner 2 when the audio mode setting switch is operated.

[0029]

In addition, the aforementioned application example is configured so that tuner 2 can receive FM broadcasts, but this function could be omitted. When configured in this way, it would not be necessary for source voltage to be supplied to tuner 2 when the audio mode is set.

[0030]

Additionally, [the receiver] could be configured with surround circuit 23 omitted, so that the output from audio switch 22 is supplied to audio output terminals 42 and 43 and audio amp 24.

[0031]

In addition, the aforementioned application example goes to standby when the plug is inserted into a power outlet, but it could also be configured so that the plug is inserted into a power outlet, and it is then set to standby by the operation of a standby switch.

[0032]

Effects of the invention

As explained in detail above, with the present invention, it is possible to provide a television receiver the role of selector, amp and speaker.

[0033]

In addition, a surround system can also be configured by combining the television receiver speaker and external speakers.

[0034]

Additionally, with a mode in which source voltage is supplied only to the audio system, no unneeded power is consumed, so power can be saved.

Brief description of the figures

Figure 1 is a block diagram showing the basic configuration of a television receiver to which the present invention is applied.

Figure 2 is a block diagram showing one example of the actual configuration of the major parts of the television receiver in Figure 1.

Figure 3 is a block diagram showing the configuration of a conventional audio-visual system.

Explanation of symbols

1 ... microcomputer, B ... AV switch and audio amp unit, C ... operating unit, D ... power unit, 21 ... audio/video switch, 22 ... audio switch, 23 ... surround circuit, 24 ... audio amp

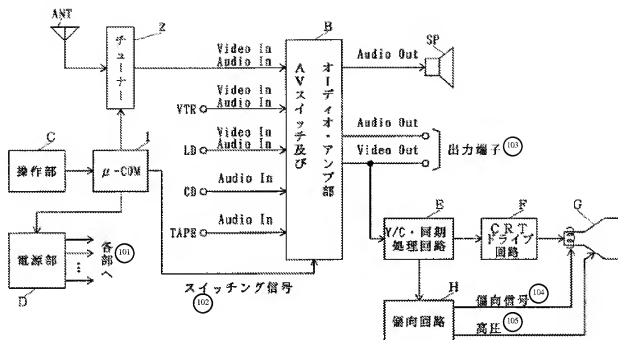


Figure 1

- Key:
- B AV switch and audio amp unit
 - C Operating unit
 - D Power unit
 - E Y/C and synchronization processing circuit
 - F CRT drive circuit
 - H Deflecting circuit
 - 2 Tuner
 - 101 To outside
 - 102 Switching signal
 - 103 Output terminal
 - 104 Deflection signal
 - 105 High voltage

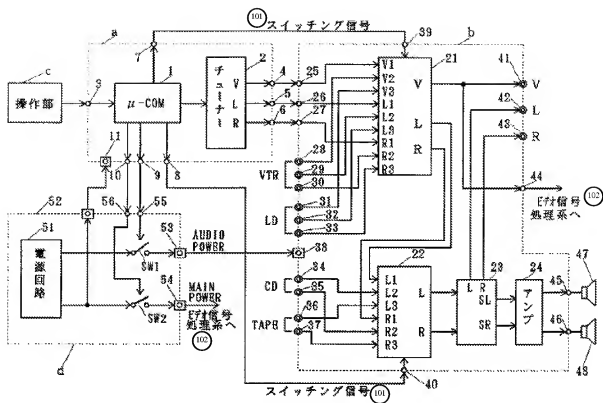


Figure 2

- Key: C Operating unit
2 Tuner
24 Amp
51 Power circuit
101 Switching signal
102 To video signal processing system

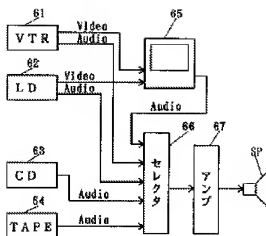


Figure 3

Key: 66 Selector
67 Amp